77. The filtering face mask of claim 36, wherein the curvature in the flexible flap extends from a point where the flap is mounted to the valve seat to a second point where the free portion of the flexible flap makes contact with the seal surface.

78. The filtering face mask of claim 77, wherein the curvature does not have an inflection point.

79. The filtering face mask of claim 33, further comprising a valve cover that has an opening that permits exhaled air to pass therethrough, the valve cover also having a fluid-impermeable ceiling that increases in height in the direction of the flexible flap from the first segment of the circumferential edge towards the second segment of the edge.

80. The filtering face mask of claim 76, wherein the opening in valve cover is positioned directly in the path of fluid flow approximately parallel to the path traced by the second segment of the circumferential edge during opening and closing of the free portion of the flexible flap.

81. The filtering face mask of claim 33, wherein the valve seat's orifice is circular and has cross-members disposed within the orifice.

82. The filtering face mask of claim 33, wherein the valve seat includes one or more cross members that are disposed within the orifice of the valve seat.

83. The filtering face mask of claim 81, wherein the cross members are slightly recessed beneath the seal surface when viewed from a side elevation.

84. The filtering face mask of claim 81, wherein the shape of the orifice, when viewed from the front, does not wholly correspond to the shape of the seal surface.

85. The filtering face mask of claim 33, wherein the valve seat includes a peripheral flange for mounting the exhalation valve to the mask body, the valve seat also having a seal ridge that extends upwardly so that the seal surface is upwardly spaced relative to the peripheral flange.